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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/772,290	02/06/2004	Young-min Choi	1568.1090	4953

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EXAMINER	
PARSONS, THOMAS H	

ART UNIT	PAPER NUMBER
1745	

DATE MAILED: 12/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/772,290	CHOI ET AL.	
	Examiner	Art Unit	
	Thomas H. Parsons	1745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 November 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14* is/are pending in the application.

4a) Of the above claim(s) *4-7,11 and 12* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,8-10,13 and 14* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *06 February 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Election/Restriction

1. Applicant's election with traverse of claims 1-3, 8-10 and 14 in the reply filed on 15 November 2006.is acknowledged. The traversal is on the ground(s) that a complete search of the claimed active material would include and/or overlap a search of the claimed method of making the cathode active material because claim 4 is directed to a method of preparing the cathode active material of claim 1. This is not found persuasive because:

The cathode active material can be made by another and materially different process such as that disclosed in U.S. Patent No. 5,427,875, which is referenced in the Applicants' Background section of the instant specification. As disclosed therein, an active material containing Li_xMO_2, where M is one or more of transition metals, preferably at least one of Co and Ni, $0.05 \leq X \leq 1.10$, is employed as a positive electrode. Examples of these active materials include composite oxides such as $LiCoO_2$, $LiNiO_2$, $LiNi_y$ and $Co_{(1-y)}O_2$, where $0.05 \leq X \leq 1.10$ and $0<y \leq 1$. These composite oxides are produced by mixing carbonates of e.g. lithium, cobalt and nickel as starting materials according to compositions and sintering the resulting mixture at 600 ° to 1000 °C in an oxygen-containing atmosphere.

Further, because these inventions are independent or distinct and there would be a serious burden on the examiner if restriction is not required because the inventions have require a different field of search in view of their different classification, the requirement is still deemed proper and is therefore made FINAL.

Specification

2. The disclosure is objected to because of the following informalities:

Page 5, paragraph [0023], line 3, suggest inserting a period (.) after "like";

Page 10, paragraph [0046], line 5, suggest changing "aluminium" to --aluminum--.

Appropriate correction is required.

3. The use of the trademark TEFLON has been noted in this application. It should be capitalized wherever it appears and be accompanied by the generic terminology.

Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner which might adversely affect their validity as trademarks.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claim 13 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 13 contains the trademark/trade name TEFLON. Where a trademark or trade name is used in a claim as a limitation to identify or describe a particular material or product, the claim does not comply with the requirements of 35 U.S.C. 112, second paragraph. See *Ex parte Simpson*, 218 USPQ 1020 (Bd. App. 1982). The claim scope is uncertain since the trademark or

trade name cannot be used properly to identify any particular material or product. A trademark or trade name is used to identify a source of goods, and not the goods themselves. Thus, a trademark or trade name does not identify or describe the goods associated with the trademark or trade name. In the present case, the trademark/trade name is used to identify/describe materials for the separator and, accordingly, the identification/description is indefinite.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 1-3, 8-10, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Inoue et al. (5,707,756).

Claim 1: Inoue et al. disclose a cathode active material comprising: a lithium transition metal composite oxide in which a carbon compound is adsorbed (col. 15: 63-col. 17: 30).

Because the lithium transition metal composite of Inoue et al. is the same as that instantly disclosed, and is manufactured in similar fashion, it obviously would provide a carbon content of 10-1,000 ppm. In particular, Inoue et al. disclose mixing and calcining (thermal treatment) a lithium compound and a transition metal compound at 250° to 2000°C in an oxidizing atmosphere, e.g., O_2 and CO_2.

Claim 2: Inoue et al. disclose a the lithium transition metal composite oxide selected from the group consisting of $LiNiO_2$, $LiCoO_2$, $LiMn_2O_4$, $LiNi_xCo_{1-x}O_2$ where $0<x<1$ (col. 11: 10-53).

Claim 3: Inoue et al. disclose that the carbon compound has a specific surface area of 10-5,000 m^2/g. Specifically, Inoue et al. disclose that the specific surface area is not particularly limited, but is preferably in the range of 0.01 to 50 m^2/g (col. 17: 10-53).

Claim 8: Inoue et al. in Figure 1 disclose lithium battery (col. 41: 63-col. 42: 15) comprising:

a cathode (5) comprising:

a cathode active material that comprises a lithium transition metal composite oxide in which a carbon compound is adsorbed (Because the lithium transition metal composite of Inoue et al. is the same as that instantly disclosed, and is manufactured in similar fashion, it obviously would provide a carbon content of 10-1,000 ppm. In particular, Inoue et al. disclose mixing and calcining (thermal treatment) a lithium compound and a transition metal compound at 250° to 2000°C in an oxidizing atmosphere, e.g., O_2 and CO_2) (col. 15: 63-col. 17: 30);

an anode (4) comprising a carbonaceous material to facilitate intercalating and deintercalating lithium ions (col. 15: 24-45);

a separator (3) interposed between the cathode and the anode;

an electrolytic solution (6) containing an electrolytic solute dissolved in a nonaqueous solvent (col. 12: 46-65); and

a current cut-off device (7) that operates in response to a rise in an internal pressure of the lithium battery (col. 36: 14-27; col. 37: 13-33; and, col. 39: 20-55).

Claim 9: Inoue et al. in Figure 1 disclose a lithium battery (col. 41: 63-col. 42: 15) comprising:

a cathode comprising: a cathode active material that comprises a lithium transition metal composite oxide in which a carbon compound is adsorbed to obtain a carbon content of 10-1,000 ppm and wherein the lithium transition metal composite oxide is at least one selected from the group consisting of $LiNiO_2$, $LiCoO_2$, $LiMn_2O_4$, $LiNi_xCo_{1-x}O_2$ where $0<x<1$ (col. 11: 10-53);

Because the lithium transition metal composite of Inoue et al. is the same as that instantly disclosed, and is manufactured in similar fashion, it obviously would provide a carbon content of 10-1,000 ppm. In particular, Inoue et al. disclose mixing and calcining (thermal treatment) a lithium compound and a transition metal compound at 250° to 2000°C in an oxidizing atmosphere, e.g., O_2 and CO_2) (col. 15: 63-col. 17: 30);

an anode (4) comprising a carbonaceous material to facilitate intercalating and deintercalating lithium ions (col. 15: 24-45);

a separator (3) interposed between the cathode and the anode;

an electrolytic solution (6) containing an electrolytic solute dissolved in a nonaqueous solvent (col. 12: 46-65); and

a current cut-off device (7) that operates in response to a rise in an internal pressure of the lithium battery (col. 36: 14-27; col. 37: 13-33; and, col. 39: 20-55).

Claim 10: Inoue et al. disclose that the carbon compound has a specific surface area of 10-5,000 m^2/g. Specifically, Inoue et al. disclose that the specific surface area is not particularly limited, but is preferably in the range of 0.01 to 50 m^2/g (col. 17: 10-53).

Claim 13: Inoue et al. disclose that the separator is selected from the group consisting of a glass fiber, polyethylene, and, polypropylene (col. 20: 25-41).

8. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Inoue et al. as applied to claim 9 above, and further in view of Parker et al. (6,692,873).

Claim 14: Inoue et al. disclose that a polymer resin is utilized as a binding agent for the anode and the cathode (col. 18: 23-61) but are silent as to a vinylidenefluoride-hexafluoropropylene copolymer having 8-25% by weight of hexafluoropropylene.

Parker et al. disclose vinylidenefluoride-hexafluoropropylene copolymer having 8-25% by weight of hexafluoropropylene (col. 1: 43-56, col. 2: 43-50, col. 4: 32-48, and col. 10: 25-67).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the binder of Inoue et al. by incorporating the binder of Parker et al. because Parker et al. teach a binder that would have formed uniform pores in the electrodes and separator, and provided excellent porosity characteristics and excellent adhesion between separator and electrodes thereby providing a battery having excellent lifetime characteristics, high performance, and low temperature characteristics.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas H. Parsons whose telephone number is (571) 272-1290. The examiner can normally be reached on M-F (7:00-4:30) First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Pat Ryan can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

PATRICK JOSEPH RYAN
SUPERVISORY PATENT EXAMINER

Thomas H Parsons
Examiner
Art Unit 1745

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